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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hiroshi Doi

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EXAMINER

BATISTA, MARCOS

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/573,506	Applicant(s) DOI ET AL.	
	Examiner MARCOS BATISTA	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/27/2006 and 09/09/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: The acronym UWB in claim 1 line 3 should be spelled out since it is the first time it appears in the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 and 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Radimirsch et al. (US 6212202 B1), hereafter "Radimirsch," in view of Haartsen (US 20090122775 A1), hereafter "Haartsen."

Consider claim 1, Radimirsch discloses a radio communication method including, a first channel in which a first radio communication device and a second radio communication device perform data communication, and which is in a sleep mode at an initial stage, and also a second channel in which communication is always possible, and which has lower power consumption than the first channel, comprising (**see figs. 3 and 4, col. 1 lines 60-67, col. 3 lines 7-8 and col. 4 lines 24-36**): a step in which the first radio communication device transmits control information to the second radio communication device in the second channel (**see col. 4 lines 24-36**); a step in which the second radio communication device receives the control information in the second channel and puts the first channel in a data reception operating mode (**see col. 4 lines 33-36**); and a step in which after transmitting and receiving of data are performed in the first channel between the first radio communication device and the second radio communication device, the reception in the first channel is returned to the sleep mode (**see col. 4 lines 26-30**).

Radimirsch, however, does not particular refer to a first channel in which a first

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radio communication device and a second radio communication device which are UWB radio communication devices perform data communication.

Haartsen, in analogous art, teaches a first channel in which a first radio communication device and a second radio communication device which are UWB radio communication devices perform data communication (**see pars. 0115 lines 1-7, 0118 lines 9-22**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Radimirsch and have it include a first channel in which a first radio communication device and a second radio communication device which are UWB radio communication devices perform data communication, as taught by Haartsen. The motivation would have been in order to *increase the transmission bandwidth* (**see par. 0115 lines 1-7**).

Consider claim 4, Radimirsch as modified by Haartsen discloses claim 1. Radimirsch also discloses a step in which the second radio communication device requests the first radio communication device to transmit communication time reservation request information using the second channel (see col. 3 lines 26-67), and wherein the first radio communication device transmits the control information in response to the request from the second radio communication device in either the first channel or the second channel (see col. 5 lines 28-43).

Consider claim 5, Radimirsch as modified by Haartsen discloses claim 1.

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Radimirsch also discloses wherein the first radio communication device further performs multicasting to the second radio communication device in the second channel (see col. 4 lines 28-43, col. 5 lines 60-63).

Consider claim 6, Radimirsch discloses a first receiving unit receiving a preamble (i. e., header) in a narrowband channel in which reception is always possible (**see fig. 1, col. 2 lines 41-48, col. 5 lines 58-63**); and a communication data selection unit controlling the power saving in said second receiving unit in the case where the communication data selection unit receives the preamble from said first receiving unit (**see col. 2 lines 41-48, col. 4 lines 24-36**), and wherein said communication data selection unit puts said second receiving unit in a power saving mode, and when said communication data selection unit receives the preamble from said first receiving unit (**see col. 2 lines 41-48, col. 4 lines 24-36**).

Radimirsch, however, does not particular refer to a second receiving unit receiving data in an UWB channel, and which can save power; said communication data selection unit cancels the power saving mode in said second receiving unit and conducts reception of data in the UWB channel.

Haartsen, in analogous art, teaches a second receiving unit receiving data in an UWB channel, and which can save power (**see pars. 0115 lines 1-7, 0118 lines 9-22**); said communication data selection unit cancels the power saving mode in said second receiving unit and conducts reception of data in the UWB channel (**see pars. 0115 lines 1-7, 0118 lines 9-22**).

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It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Radimirsch and have it include a second receiving unit receiving data in an UWB channel, and which can save power; said communication data selection unit cancels the power saving mode in said second receiving unit and conducts reception of data in the UWB channel, as taught by Haartsen. The motivation would have been in order to *increase the transmission bandwidth and battery operation duration* (**see pars. 0115 lines 1-7, 0118 lines 9-22**).

Consider claim 7, this claim discusses the same subject matter as claim 6. Therefore, it has been analyzed and rejected based upon the rejection to claim 6.

Consider claim 8, this claim discusses the same subject matter as claim 6. Therefore, it has been analyzed and rejected based upon the rejection to claim 6.

Consider claim 9, this claim discusses the same subject matter as claim 6. Therefore, it has been analyzed and rejected based upon the rejection to claim 6.

Consider claim 10, Radimirsch as modified by Haartsen discloses claim 9. Radimirsch also discloses wherein the control information includes communication time reservation request information in which a time slot in which a source radio communication device will transmit data is written (see col. 4 line 67 - col. 5 line 3, col. 5 lines 28-43), wherein said receiver further comprises; a communication information

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analysis unit which extracts an identifier of the source radio communication device and the reserved time slot for data transmission from the communication time reservation request information (see col. 5 lines 3-6 and lines 54-63); a communication reservation table in which said communication information analysis unit records the identifier and the reserved time slot, linking them with each other, when the destination of the control information is that receiver (see col. 5 lines 6-27, col. 7 lines 12-22); and a response information generation unit which generates communication time reservation response information in which information for notifying proper reception is added to the communication time reservation request information (see col. 5 lines 28-43), and wherein the control information pulse generation unit of the transmitter generates a pulse based on the communication time reservation response information generated by said response information generation unit and the oscillator generates a signal of the narrowband channel according to the pulse (see col. 3 lines 21-26, col. 5 lines 28-43).

Consider claim 11, Radimirsch as modified by Haartsen discloses claim 10. Radimirsch also discloses wherein the communication data selection unit allows information to be receivable in the UWB channel only in the reserved time slot of data transmission addressed to the radio communication device (see col. 5 lines 28-43).

6. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Radimirsch et al. (US 6212202 B1), hereafter "Radimirsch," in view of Haartsen (US 20090122775 A1), hereafter "Haartsen," further in view of Koval (US 20040109497 A1),

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hereafter "Koval."

Consider claim 2, Radimirsch as modified by Haartsen discloses claim 1.

Radimirsch also discloses the first channel is a wideband transmission channel and the second channel is a narrowband transmission channel (see col. 4 lines 45-51).

Haartsen also teaches wherein both the first radio communication device and the second radio communication device are UWB radio communication devices (**see pars. 0115 lines 1-7, 0118 lines 9-22**). The motivation would have been in order to *increase the transmission bandwidth* (**see par. 0115 lines 1-7**).

Radimirsch as modified by Haartsen, however, does not particular refer to a narrowband transmission channel whose modulation and demodulation rates are set to be less than or equal to a predetermined value.

Koval, in analogous art, teaches a narrowband transmission channel whose modulation and demodulation rates are set to be less than or equal to a predetermined value (**see pars. 0011 lines 5-11, 0014 lines 5-11**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Radimirsch as modified by Haartsen and have it include a narrowband transmission channel whose modulation and demodulation rates are set to be less than or equal to a predetermined value, as taught by Koval. The motivation would have been in order for a transmitter and a receiver to coordinate on a modulation scheme (**see pars. 0011 lines 5-11, 0014 lines 5-11**).

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Consider claim 12, Radimirsch as modified by Haartsen discloses claim 9.

Radimirsch as modified by Haartsen, however, does not particular refer to wherein the narrowband channel is a channel in which modulation and demodulation rates are set to be less than or equal to a predetermined value.

Koval, in analogous art, teaches wherein the narrowband channel is a channel in which modulation and demodulation rates are set to be less than or equal to a predetermined value (**see pars. 0011 lines 5-11, 0014 lines 5-11**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Radimirsch as modified by Haartsen and have it include wherein the narrowband channel is a channel in which modulation and demodulation rates are set to be less than or equal to a predetermined value, as taught by Koval. The motivation would have been in order for a transmitter and a receiver to coordinate on a modulation scheme (**see pars. 0011 lines 5-11, 0014 lines 5-11**).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Radimirsch et al. (US 6212202 B1), hereafter "Radimirsch," in view of Haartsen (US 20090122775 A1), hereafter "Haartsen," further in view of Liu (US 7103371 B1), hereafter "Liu," and further in view of Mano (US 6778586 B1), hereafter "Mano."

Consider claim 3, Radimirsch as modified by Haartsen discloses claim 1. Radimirsch also discloses wherein the control information further includes communication time reservation request information in which a time slot when data

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transmission will be performed is written, further comprising (see col. 4 line 67 - col. 5 line 3, col. 5 lines 28-43): a step in which if the communication time reservation request information included in the received control information is addressed to the second radio communication device, in the second channel it transmits communication time reservation response information in which information notifying that communication reservation addressed to the second radio communication device has been received is added to the communication time reservation request information (see col. 4 line 67 - col. 5 line 3, col. 5 lines 28-43); wherein the first radio communication device transmits data using the second channel in the time slot designated by the communication time reservation request information (see col. 4 line 67 - col. 5 line 3, col. 5 lines 28-43).

Radimirsch as modified by Haartsen, however, does not particular refer to a step in which a third radio communication device located in an area where communication is possible with the first radio communication device or the second radio communication device or both receives the communication time reservation request information from the first radio communication device or the communication time reservation response information from the second radio communication device or both in the second channel, and stores the time slot written in the communication time reservation request information or the communication time reservation response information as a transmission prohibition time slot.

Liu, in analogous art, teaches a step in which a third radio communication device located in an area where communication is possible with the first radio communication device or the second radio communication device or both receives the communication

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time reservation request information from the first radio communication device or the communication time reservation response information from the second radio communication device or both in the second channel, and stores the time slot written in the communication time reservation request information or the communication time reservation response information as a transmission prohibition time slot (see col. 11 lines 43-59).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Radimirsch as modified by Haartsen and have it include a step in which a third radio communication device located in an area where communication is possible with the first radio communication device or the second radio communication device or both receives the communication time reservation request information from the first radio communication device or the communication time reservation response information from the second radio communication device or both in the second channel, and stores the time slot written in the communication time reservation request information or the communication time reservation response information as a transmission prohibition time slot, as taught by Liu. The motivation would have been in order to identify available time slot for transmission (see col. 11 lines 43-59).

Radimirsch as modified by Haartsen and Liu, however, does not particular refer to a step in which the third radio communication device decides a time slot in which its own transmission and reception are possible, based on the stored time slots of transmission prohibition.

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Mano, in analogous art, teaches a step in which the third radio communication device decides a time slot in which its own transmission and reception are possible, based on the stored time slots of transmission prohibition (see col. 4 lines 6-11).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Radimirsch as modified by Haartsen and Liu and have it include a step in which the third radio communication device decides a time slot in which its own transmission and reception are possible, based on the stored time slots of transmission prohibition. The motivation would have been in order to prevent collisions as different communication apparatuses try to communicate one another in the same network (see col. 4 lines 6-11).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marcos Batista, whose telephone number is (571) 270-5209. The Examiner can normally be reached on Monday-Thursday from 8:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Pérez-Gutiérrez can be reached at (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Marcos Batista/
Examiner

/Rafael Pérez-Gutiérrez/
Supervisory Patent Examiner, Art Unit 2617

06/03/2009